CAREBS Coalition to Advance Renewable Energy through Bulk Storage

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Docket No. 11-IEP-1G
Executive Summary for Renewable
Power in California: Status and Issues

Making Bulk Energy Storage an Integral Part of Electricity Infrastructure Planning and Renewable Energy Growth in California

Submitted by:
The Coalition to Advance Renewable
Energy through Bulk Storage (CAREBS)

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Making Bulk Energy Storage an Integral Part of Electricity Infrastructure Planning and Renewable Energy Growth in California

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The Coalition to Advance Renewable Energy through Bulk Storage (CAREBS) thanks the Commission for the opportunity to submit comments to the Executive Summary for Renewable Power in California. CAREBS urges the Commission to make bulk energy storage more prominent in the Integrated Energy Policy Report (IEPR) process by explicitly encouraging the CEC, electric utilities, the California Independent System Operator (CAISO), and other stakeholders (e.g., non-utility generators) to include bulk energy storage facilities—particularly pumped hydroelectric storage (PHS) and compressed air energy storage (CAES)—in all studies, planning, and infrastructure buildout evaluations. This will only strengthen California's public leadership in renewable energy growth and advanced electricity infrastructure.

Unlike most distributed storage technologies proceeding through the research, development, and demonstration (RD&D) process, CAES and PHS are commercial technologies backed by the types of supplier warranties and performance guarantees that allow them to be financed. They represent minimum technology risk to investors, and minimum reliability risk to grid operators, and systems are available from U.S. suppliers.

The Commission, rightly in our opinion, "continues to support a fully integrated transmission and generation planning process." What's more, the intent of *Renewable Power in California: Status and Issues* is to "develop consensus among stakeholders on the major challenges facing renewable development in California as the basis for development of a more comprehensive strategic plan that establishes a vision, goals, and suggested strategies."

CAREBS believes that California will most cost-effectively achieve its ambitious goals of the 33% by 2020 renewable portfolio standard (RPS) by integrating bulk energy storage into the transmission and generation planning process. Bulk storage does not fit into the prevailing categories of electricity infrastructure and, in fact, helps optimize the existing elements by:

- Expanding and optimizing the use of existing transmission lines
- Reducing the inefficient cycling and start/stops of older, dirtier fossil-fired power plants
- Responding quickly to provide critical grid ancillary services, including frequency regulation
- Smoothing out the intermittency of renewable energy resources

Because underground CAES and PHS are commercially available and familiar to grid operators, CAREBS believes that the Commission should view them in the context of gas-fired turbine assets,

which are likely to be the near-term first choice for filling in around renewable energy generation. However, CAES and PHS are more versatile and more flexible than gas-fired turbines—storage behaves like capacity when necessary or like load when necessary—and result in either no additional emissions (PHS) or far lower emissions (CAES). Strategically located CAES and PHS facilities in California and throughout the western region will improve grid stability and assure that additional renewable resources from the region will help California meet its RPS goals.

Bulk energy storage directly impacts the following issues specifically identified in the Executive Summary:

- Displace retiring or declining coal capacity with emissions free-renewable energy
- Help ensure that the 33% RPS is a floor rather than a ceiling
- Reconnect generation and transmission planning
- Optimize the use of the existing grid
- Achieve grid-level integration
- Demonstrate public leadership

In light of these attributes of bulk energy storage, CAREBS suggests that the Commission add the following to its "Recommended Strategies":

> Encourage the planning of electricity infrastructure with bulk energy storage facilities as an element equal in weight to transmission, generation, fuel supply, distribution, and renewable resources. Fund and support studies that identify strategic sites for bulk energy storage throughout the state and the region and evaluate the economic impact of facilities in these locations and the benefits to California ratepayers with respect to costs, emissions, grid reliability, and expansion of delivered renewable energy megawatt-hours to California customers within shorter time frames. Contrast PHS and CAES to the prevailing gas-fired turbine options and determine whether bulk storage might be a better and more flexible long-term investment for the state.

CAREBS thanks the commission for the opportunity to submit these comments.